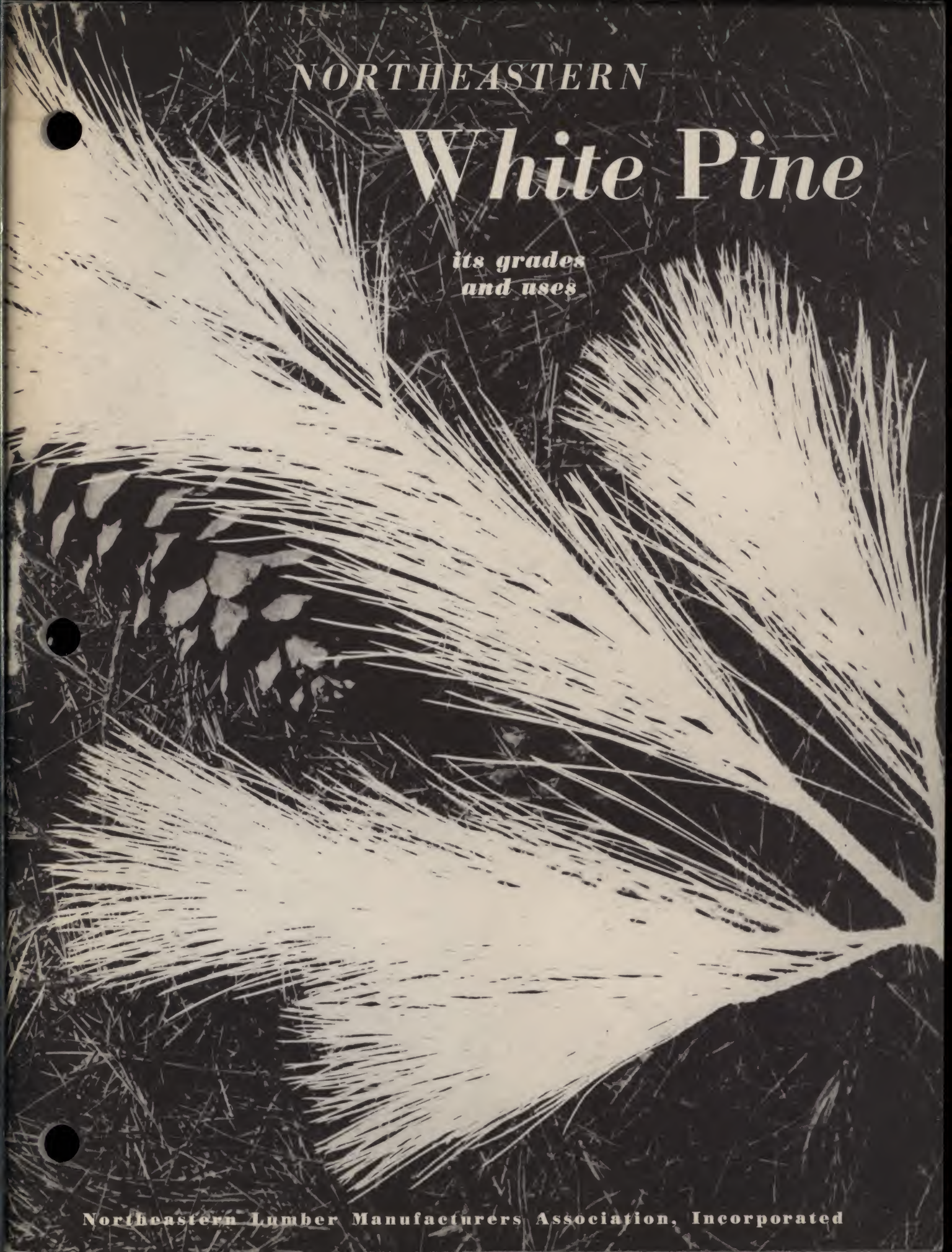




NORTHEASTERN

White Pine

*its grades
and uses*

Northeastern Lumber Manufacturers Association, Incorporated



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271 Madison Avenue, New York 16, N. Y.

NORTHEASTERN WHITE PINE

(*PINUS STROBUS*)

The Bedrock Upon Which the Lumber Industry in the United States Was Built

Light in weight, soft, even-textured and easily worked, Northeastern white pine (the true *Pinus strobus*) is also known as eastern pine, northern pine, or simply white pine. It does not swell or shrink greatly with changes in moisture content and is probably the least resinous of all pines.

The lumber industry of the United States was literally founded on white pine 300 years ago and it is still regarded today as the most exceptional and generally useful wood.

Northeastern white pine is used in millwork, knotty pine paneling, boxes and crates, coffins, boats, woodenware and novelties. It finds widespread application in foundry patterns, shade rollers, drawing boards and matches. Not considered as structural lumber by many people, the lower grades nevertheless are commonly used in the regions of its growth for light construction. White pine is almost literally adaptable to every possible use from beams and stringers to masts and matches.

One of the greatest values Northeastern white pine has to offer is its almost incredible durability. This is well illustrated by the large number of houses built of white pine in New England 200 and more years ago. Many of these are still in excellent condition although they have never been painted or otherwise protected from the elements.

Northeastern white pine is manufactured and graded in accordance with rules published by the Northeastern Lumber Manufacturers Association. These grading rules were developed by the manufacturers of pine in the Northeast. They have been approved by the Bureau of Standards and are generally accepted by the Federal Government and the industry at large as the official grading rules for white pine manufactured in the Northeastern section of the United States.

It is extremely difficult for many persons in the lumber industry itself — to say nothing of the public at large — to understand why grad-



View of old Sullivan house in Machias, Maine. Built in 1850, all finish, including window frames and sash, were built of native pine. The original white pine members are still in good condition.

ing rules for all softwood lumber cannot carry the same designations and descriptions. However, the uniformity similar to that in the hardwood industry where there is only one set of grading rules regardless of locality, cannot be achieved in softwoods.

The real reason is that grading rules must be developed to apply to individual species or groups of species on the basis of growth characteristics and consequently the defects in lumber.

Probably 50 per cent of the total volume of white pine now being produced in the Northeast has quite a few red knots and possibly some other defects. This comes about because of the size of the trees and the fact that there are few pure stands where the trees grow close together. In some of the Western softwood forests, the softwood timber grows in pure stands and the trees are very old and very large. Consequently, they produce a very high percentage of clear lumber. Therefore, it can readily be understood that in the case just cited, the grading rules would necessarily have to be written in order to properly describe and cover the lumber being produced. It is almost as difficult to try to compare the grades of different species of lumber as it is to compare the qualities of different races of people. There is, then, a high percentage of common grades in Northeastern white pine.

Grading is in reality quality segregation and, at the same time, the uses are taken into account. Most boards have defects and blemishes in varying degree and their utility and value vary accordingly.

Certain industries need the relatively scarce high quality pieces although such material is expensive. Other users want cheap lumber and satisfy their needs with the quality obtainable at a suitable price. Because lumber is usually bought for a particular use or purpose, it is a saleable commodity under normal conditions only after it has been sorted into a series of quality classes that parallel in a general way the use requirements of a majority of wood consumers.

In September of 1938 a hurricane swept through the New England States causing property damage aggregating millions of dollars. Various estimates have been made as to the total volume of white pine blown down or otherwise damaged. The estimates vary from one-tenth to one-third of the total volume. The former percentage is the more nearly correct. The most serious damage occurred in Eastern Vermont, Western New Hampshire and North-central Massachusetts.

Despite this catastrophe, the future supply of Northeastern white pine is assured. A United States Forest Service estimate made in 1938 showed approximately twelve billion board feet of saw timber size white pine in the Northeastern States. The total stand in the United States at that time was estimated at a little more than eighteen billion board feet. More than 30 per cent of Northeastern white pine is in the State of Maine. Approximately 25 per cent is in New York, with stands in other states ranking in this order: New Hampshire, Pennsylvania, Massachusetts and Vermont.

The average annual reported cut of Northeastern white pine for the ten-year period 1933-42 was 538,600,000 board feet. This is equivalent to approximately 472,000,000 board feet after making allowance for the jack pine and red pine in the recorded figures. The 1942 production reached 1,083,000,000 board feet, the greatest since 1923. In 1943 production was only slightly less than 1942. Yes, there is no doubt that the future supply of Northeastern white pine is assured.

For those interested in statistics indicating which States lead in the production of white pine, Maine took the lead in 1931 followed by

This white pine end table may also be used as a stool on picnics and other informal occasions.



A sturdy lawn chair built of white pine. Sound red knots add to its beauty. This is a prime example of how Northeastern white pine not of the highest grade may be used in products of unquestioned durability.





This fine chifforobe indicates the adaptability of white pine because softwoods are not normally used in mass production of furniture. White pine's well-known qualities—lightness in weight and easy workability—provide distinct advantages for custom work.

New Hampshire. During the 1933-42 period, New Hampshire ranked first in output for six of the ten years and Maine for four years.

As regards quality of Northeastern white pine, a report made and published by a group of experts shortly after the hurricane of 1938 by the Forest Products Laboratory under the title "Common-Grade Qualities in New England White Pine and Other Species," is very revealing. The following is quoted from the report.

"No. 4 Common white pine, under the rules of the Northeastern Lumber Manufacturers Association, is the grade that constitutes more than 45 to 50 per cent of the salvaged pine and that is most nearly comparable on a quality basis with Southern pine No. 2 Common and Roofers and No. 2 Common Douglas fir . . . One cannot refrain from commenting in passing on the unfortunate disparity in grade nomenclature because it undoubtedly has an effect on the ultimate buyer to be confronted with the alternative of buying a No. 4 grade in one wood and a No. 2 grade in another. However, at this time, there is probably little that can be done about it except perhaps to educate the buying public that the names of grades in themselves are not of primary significance."



Northeastern white pine paneling in a much-frequented upstate New York restaurant. It provides soft, warm beauty, lending atmosphere to many a similar establishment with an otherwise drab motif.

Under favorable conditions of growth, Northeastern white pine trees reach heights of 100 feet or more and diameters of from three to six feet. Extensive stands containing from 25,000 to 50,000 feet to the acre were formerly not uncommon. Present stands in New England when conditions of growth are most favorable average 1.7 inches in diameter and 7.2 feet in height at ten years; 8.6 inches in diameter and 61 feet in height at forty years; and 16.5 inches in diameter and 101 feet in height at eighty years.

In its area of natural growth, the Northeastern part of the United States, white pine is a hardy tree. It reproduces satisfactorily both naturally and by artificial seeding or planting.

There are few remaining so-called pure stands of white pine. This is the real reason for the comparatively low percentage of clear lumber which is commercially available at the present time. Normally, when trees grow close together in a pure forest, the lower branches frequently die due to the lack of light. On white pine trees these dead limbs are often retained for fifty years or more and thereby cause the knots which are characteristic of lumber.

Even though cut from comparatively young trees, it is only after the dead limbs are broken off by the swaying branches or nearby trees, or removed by pruning or other means, that clear wood is formed from which high grade lumber, free from knots, can be sawed. So, although the future supply of Northeastern white pine is assured, there will always be a very high percentage of the lower grades because of the presence of knots.

Northeastern white pine, however, is characterized by sound, red knots which are a decided advantage for panel purposes and are really no disadvantage in its commercial uses.

Fireplace in a colonial living room encased in white pine paneling. The homeowner using this decor faces negligible maintenance costs for white pine mellows and the color improves with age.





The genesis of the Northeastern white pine story—logs immediately after being felled in their homeland deep in a cool New Hampshire forest. They will soon be hauled away to be processed into lumber for use in a multitude of products for home and industry. Six months after this picture was taken these logs reached the lumber consuming market in the form of end products, some of which are shown in this booklet.

Round edge white pine planks stacked in a Maine mill drying yard. It is evident that some have been cut from crooked trees, but this is no disadvantage since they will be cut to short lengths for conversion to heels for "wedgies." Other bread and butter usages include all-important boxes and crates, as well as mouldings and small structural trim. Round edge is a New England lumber product exclusively.





The largest white pine concentration yard in the Northeast, located on the Vermont-New York line. This is typical of the yarding and dressing facilities offered by the Northeastern lumber industry in supplying white pine of any grade and specification desired by users. The handling of lumber is completely mechanized.

“Round edge” is a term that is little known in this country outside of New England. Round edge pine is the product of a log when sawn “through and through” (flitch sawn). It is sold without being edged. Many of the box factories in New England use round edge pine entirely for their machinery is designed to utilize it.

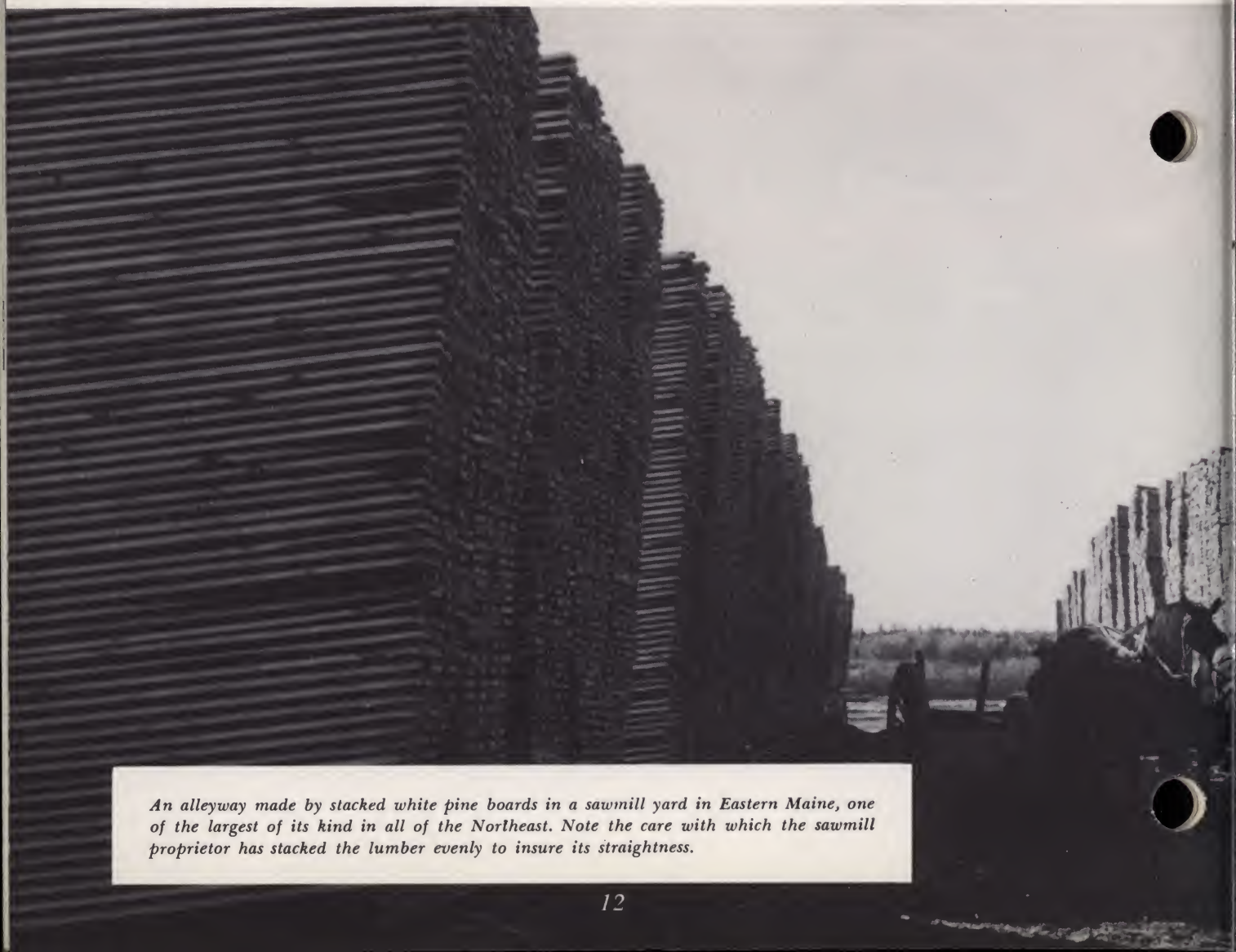
There are many good reasons for round edge pine. The most important is that by sawing in that manner, many crooked trees that would otherwise be of no value can be utilized. So, the production of round edge pine is in reality one of the highest forms of close utilization.

Many companies doing selective cutting on their own timberlands saw their crooked trees into round edge lumber. It gets them out of the forest, giving the straight trees a better chance to grow and develop and, at the same time, the manufacturers are able to realize some gains which at least covers the cost of this means of practicing good forestry.

Another reason for round edge pine lumber is for box shooks made of short lengths and it is possible to use practically everything including the white sapwood when round edge boards are converted into box stock. Some furniture manufacturers in New England buy round edge hardwood lumber for the same reason as given above in the case of pine.



Barns and silos are an important market for white pine. Since silage is wet and white pine withstands moisture with maximum efficiency, an increasing number of manufacturers clamor for this type of lumber for constructing silos. White pine's resistance to the elements also keeps it in brisk demand for farm buildings.

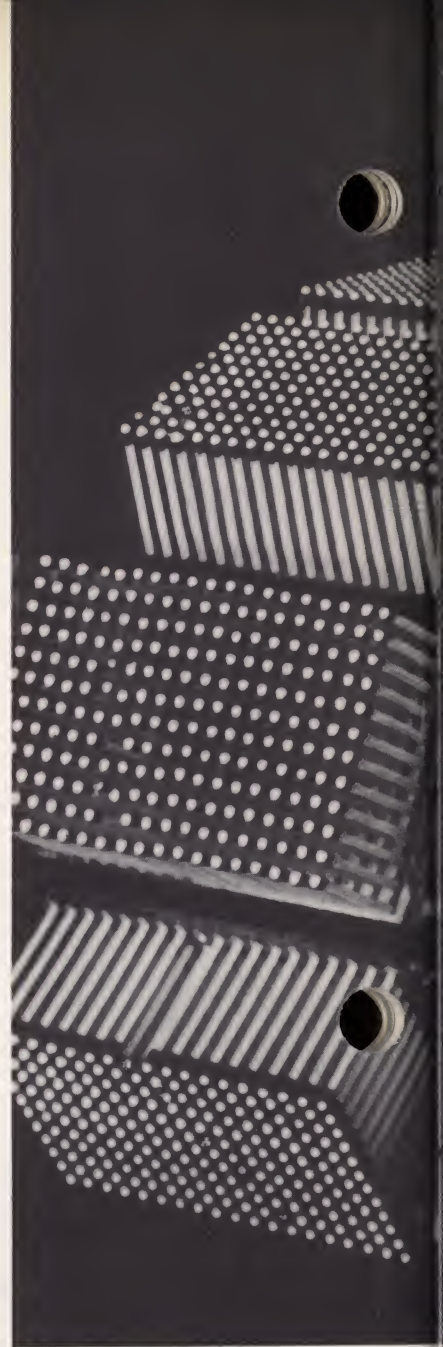


An alleyway made by stacked white pine boards in a sawmill yard in Eastern Maine, one of the largest of its kind in all of the Northeast. Note the care with which the sawmill proprietor has stacked the lumber evenly to insure its straightness.

A fork lift truck used in handling loads of pre-stacked white pine boards in a concentration yard. This device cuts materials handling production costs, thus enabling producers to offer top quality at reasonable prices. By use of the fork lift truck the stacks may be built high, enabling the greatest use of sometimes limited storage space.

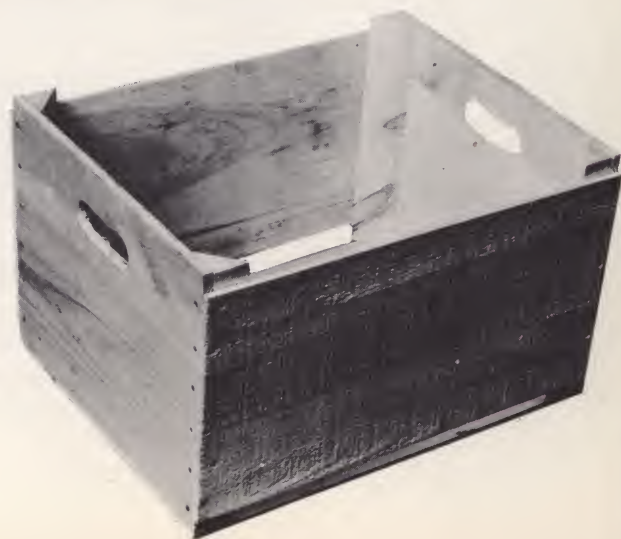


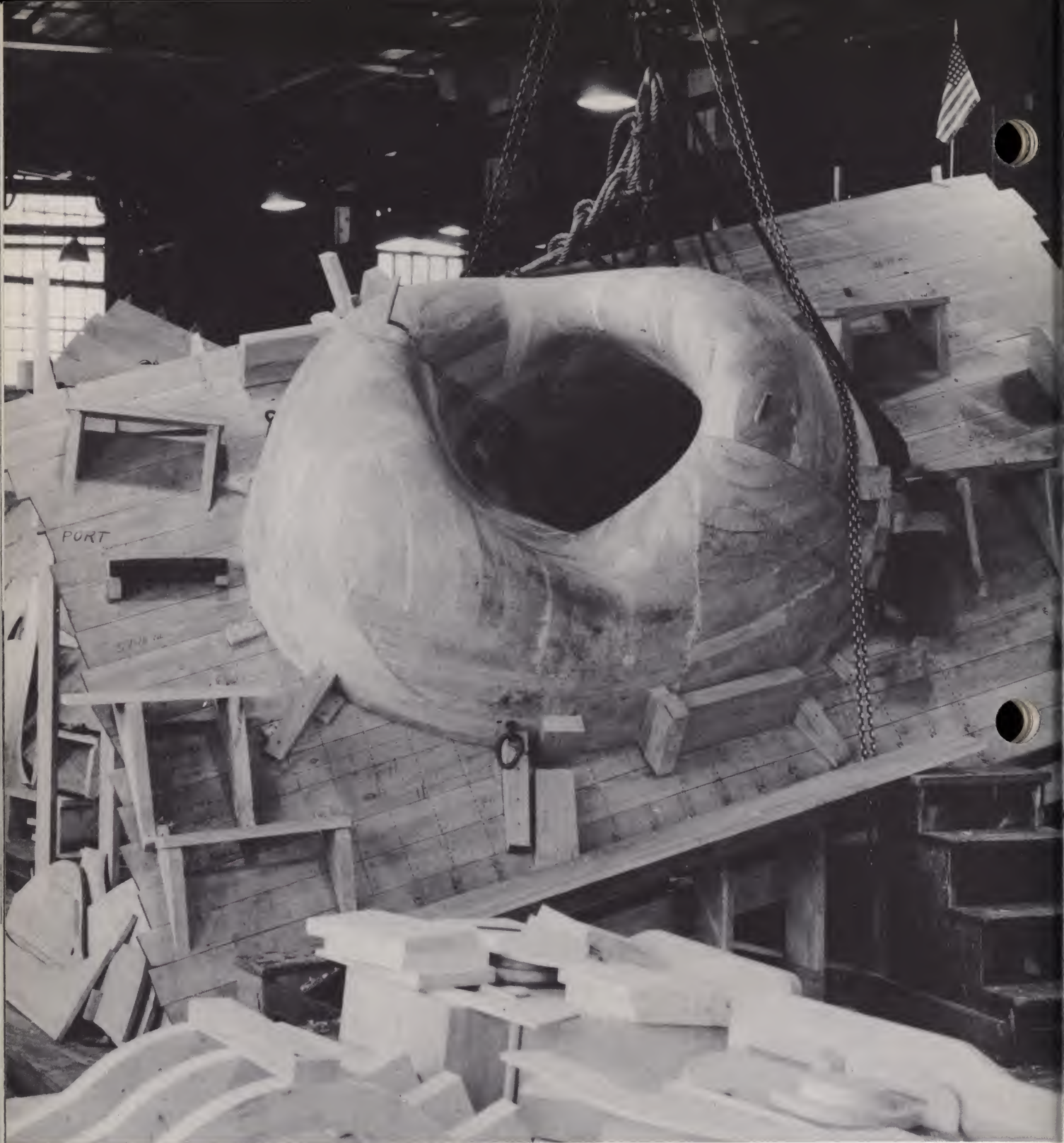
Dipped matches made from Northeastern white pine are shown traveling along a chain conveyor belt. Matches are one of the most important end uses of white pine. This wood makes for excellent matches because of its extremely light weight, softness and ease of workability. These matches soon will be shipped all over the nation by one of the largest match manufacturers in the United States.





Three types of boxes used for widely varying purposes, but all constructed from Northeastern white pine. The first box is an extra-heavy unit for 20 millimeter cartridges and other ammunition. This type of box used up many millions of board feet of white pine during the recent bitter world conflict. The second product is a general utility crate, featuring strength and lightness in weight and has sound red knots typical of the lower grades. The third item shows how white pine may be very easily milled in a box factory to provide grips for handling. A design similar to that in the last photograph is used widely in the milk and soft drink bottling industry.





A Northeastern white pine pattern of a giant hawser opening, later to be cast in metal and affixed to one of Uncle Sam's huge dreadnaughts which will serve as a vital unit in our country's "first line of defense." White pine has always been a choice wood for patterns because of its workability. Thus, like Northeastern lumber manufacturers themselves, white pine played its unsung, modest but undeniably essential role in the titanic drama of global conflict for man's freedom.

GRADES

Descriptions and Illustrations

Northeastern white pine is graded under the rules formulated by the Grading Committee approved by the industry and published by the Northeastern Lumber Manufacturers Association. The rules were first published in January, 1937 and have been revised from time to time.

The grading of lumber cannot be considered an exact science because it is based on visual inspection and the judgment of the grader. Lumber must necessarily be manufactured on a defect basis in spite of the fact that it must be sold on a use basis.

The photographs of each of the grades on the following pages have been made from carefully selected representative boards of each grade. The grading rules are based principally upon the natural inherent characteristics of white pine of definite types or utility value. It is classified into grades to provide measures of value. These grades represent the same value and are suitable for the same purpose irrespective of the source of origin or the character of the logs from which the lumber was produced. The illustration and interpretation of any grade is intended to include all lumber between the next higher grade and the next lower grade.

Lumber is graded from its better face, the reverse face admitting no defects other than those permissible in the lower grade. The face side of the piece is that showing the best grade or appearance.

When defects or blemishes, or combinations thereof not described or illustrated, are encountered, they will be considered as equivalent to known defects according to their damaging effect upon the piece in the grade under consideration.

B SELECT AND BETTER

This is the highest grade of Northeastern White Pine. It includes not only the B Select, but also all of the better product of the log. Its principal use is for high grade natural finish.

1. 1" x 10" - 10' . . . Entirely clear board.
2. 1" x 6" - 10' . . . One small pin knot. Otherwise perfectly clear.
3. 1" x 6" - 10' . . . One small pin knot. Otherwise perfectly clear.
4. 1" x 6" - 10' . . . Perfectly clear board with the exception of small amount of light stain.
5. 1" x 7" - 10' . . . One small pin knot and a small amount of light stain.
6. 1" x 6" - 10' . . . Perfectly clear board.
7. 1" x 4" - 10' . . . Perfectly clear board.
8. 1" x 8" - 10' . . . Perfectly clear board.
9. 1" x 6" - 10' . . . Two very small pin knots. Otherwise perfectly clear.



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C SELECT

This is the second highest grade of Northeastern White Pine which is suitable for high class paint finishes. Admissible defects are the same as those in B Select and Better, but may be present to a slightly greater degree.

1. 1" x 10" - 10' ... One small pitch streak. Medium sticker stain. Small amount of light stain.
2. 1" x 5" - 10' ... One long strip of light stain.
3. 1" x 5" - 10' ... One small pitch streak and a small patch of medium stain.
4. 1" x 10" - 10' ... Has four pin knots and a small amount of medium sticker stain.
5. 1" x 5" - 10' ... Has one very small pitch streak. Otherwise perfectly clear.
6. 1" x 6" - 10' ... Has one pin knot. No other defects.
7. 1" x 5" - 10' ... Has one pin knot. No other defects.
8. 1" x 6" - 10' ... Has two pin knots. Otherwise perfectly clear.
9. 1" x 4" - 10' ... Has two pin knots and light stain at top of board.
10. 1" x 10" - 10' ... Has three pin knots in combination with medium sticker stain.



1 2 3 4 5 6 7 8 9 10

D SELECT

This grade belongs between the higher finishing grades and common grades of Northeastern White Pine, partaking somewhat of the nature of both.

1. 1" x 6" - 10' ... Has three very small pin knots and one medium knot near the center of board.
2. 1" x 6" - 10' ... Has two pin knots and one large knot near end.
3. 1" x 8" - 10' ... Has eight pin knots. No other defects.
4. 1" x 6" - 10' ... Has six pin knots. No other defects.
5. 1" x 3" - 10' ... Has small amount of light stain, one small pitch pocket and two small knots at edge near one end.
6. 1" x 8" - 10' ... Has two pin knots, scattered light stain and one large knot.
7. 1" x 6" - 10' ... Has five pin knots. No other defects.
8. 1" x 8" - 10' ... Has one pin knot and one unsound black knot.
9. 1" x 3" - 10' ... Has one unsound knot at edge.
10. 1" x 6" - 10' ... Has two pin knots, also one medium knot.
11. 1" x 7" - 10' ... Has medium stain over three-fourths of the surface of the face. No other defects.
12. 1" x 3" - 10' ... Light to medium stain over entire board. Large knot at lower end.



1 2 3 4 5 6 7 8 9 10 11 12

No. 1 COMMON

No. 1 Common is the highest of the common grades of Northeastern White Pine. It is useful for both exterior and interior work where sound, small, tight-knotted stock, free from large, coarse defects, is required.

1. 1" x 10" - 10' . . . Has twelve scattered red and black pin knots, one $\frac{3}{4}$ inch tight black knot with light pitch extending from the knot. Note that both edges are clear.
2. 1" x 5" - 10' . . . Has pin knots scattered over the face of the board and two small sound spike knots on one edge. Edges are otherwise clear.
3. 1" x 6" - 10' . . . Has six pin knots and two $\frac{1}{2}$ inch red knots. Clear edges.
4. 1" x 4" - 10' . . . Has six sound pin knots, one on the edge. Has one pitch streak one inch long and fifty per cent of the surface of the board has light stain.
5. 1" x 8" - 10' . . . Has eighteen pin knots and two small sound knots on one edge, approximately 30 per cent of the surface of the face is covered by light stain.
6. 1" x 6" - 10' . . . Has scattered pin knots. Both edges are clear. Approximately 20 per cent of the surface has light stain.
7. 1" x 10" - 10' . . . Has scattered pin knots, one $\frac{3}{4}$ inch red knot and one $\frac{3}{4}$ inch black knot. Also has one small spike knot and one small sound red knot in one edge.
8. 1" x 6" - 10' . . . Has scattered pin knots. Clear edges.
9. 1" x 4" - 10' . . . Has scattered pin knots. Clear edges.
10. 1" x 7" - 10' . . . Has scattered pin knots, two $\frac{1}{2}$ inch red knots and one $\frac{1}{2}$ inch black knot. Very light pitch extends from the black knot.
11. 1" x 4" - 10' . . . Has scattered pin knots, one is on one edge. Also has two inches of heart pith.



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No. 2 COMMON

No. 2 Common is of the same general character as No. 1 Common but it does admit more numerous prominent defects. All edges in No. 2 Common should be free from unsound defects.

1. 1" x 4" - 10' ... Has two small sound edge knots and two small knots in the center of board. Light stain is indicated near one end.
2. 1" x 10" - 10' ... Has scattered red pin knots and seven medium knots as well as a small patch of medium stain near one end.
3. 1" x 5" - 10' ... Numerous small red knots. Six sound red knots are in the edges of this board.
4. 1" x 6" - 10' ... A typical No. 2 Common board. Numerous small red knots and one small sound red knot in one edge.
5. 1" x 8" - 10' ... One small red knot in edge. One $\frac{1}{2}$ inch sound black knot and three small red knots. Scattered light stain.
6. 1" x 6" - 10' ... Has scattered small knots and pin knots and scattered light stain. Both edges are clear.
7. 1" x 8" - 10' ... Has sixteen pin knots and one small red knot. Also has two red knots and one sound red spike knot in edge.
8. 1" x 6" - 10' ... Has two small sound knots in edge, two medium red knots and five pin knots on the surface as well as a small area of medium stain.
9. 1" x 8" - 10' ... Has one small sound black knot, four medium red knots and two small red knots. Both edges clear.
10. 1" x 10" - 10' ... Has one medium red spike knot, one red knot cluster and four small pitch seams. Also has three inches of heart pith.



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No. 3 COMMON

This is normally considered as a good utility grade of Northeastern White Pine which has a wide variety of uses. It admits coarser and larger knots, mostly sound, and a greater extent of other defects than No. 2 Common. Knots are of a type that will not drop out in dressing.

1. 1" x 8" - 10' . . . The one medium knot in the edge makes this a No. 3 Common board. Other defects are typical of a No. 2 Common board.
2. 1" x 8" - 10' . . . The four large red knots in combination with other defects readily classify this board.
3. 1" x 4" - 10' . . . The one medium sound red knot in the center, together with the other defects, prevents this board from grading No. 2 Common.
4. 1" x 8" - 10' . . . Has medium cross grain near lower end, two large red branch knots, several small and medium knots as well as a small area of medium stain.
5. 1" x 5" - 10' . . . Has several sound red branch knots extending to edge, but not exceeding one half the thickness and one half the width of the board.
6. 1" x 8" - 10' . . . Has numerous small to medium sound red knots and one large unsound red knot.
7. 1" x 8" - 10' . . . Has two red branch knots which in combination with the other apparent defects prevent this board from grading No. 2 Common.
8. 1" x 3" - 10' . . . Has two sound medium red knots and seven pin knots.
9. 1" x 12" - 10' . . . Has large and medium red knots well scattered as well as one small black knot and one unsound black knot in the edge.
10. 1" x 6" - 10' . . . Note the single red knot which extends more than one third the width of the piece thereby classifying this board in No. 3 Common instead of No. 1 Common which it would grade without the large knot.
11. 1" x 8" - 10' . . . Has many small red and black knots, one large red knot partially encased and one small unsound edge knot.



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No. 4 COMMON

This is also a general utility grade used chiefly for industrial and construction purposes. It has combinations of the typical 2 and 3 Common defects that make the No. 4 Common a lower grade. Over all, it is a sound board permitting numerous knots but the knots are of a type which will not drop out in dressing.

1. 1" x 5" - 10' ... Has five medium red knots and one large red knot which cover more than one-third the width of the piece. Without this large knot, the board would grade No. 3 Common.
2. 1" x 10" - 10' ... The defects on this board are largely typical No. 3 Common defects except for the large bark seam, and the one edge which chipped in dressing. There is also a small amount of stain near both ends.
3. 1" x 3" - 10' ... Has three small to medium black knots, one of which is loose and in the edge.
4. 1" x 5" - 10' ... The one large encased knot which covers about one-third the width of the piece, definitely classifies this board as No. 4 Common because it is in combination with other defects.
5. 1" x 8" - 10' ... The twelve inch bark seam together with the typical Common board defects, classifies this as a No. 4.
6. 1" x 8" - 10' ... A good No. 4 Common board. The coarse grain and the knot hole in the edge in combination with the other defects makes it so.
7. 1" x 8" - 10' ... Has two bark seams, one is medium, the other small. Without these defects in combination with the apparent other ones, this would be a No. 2 Common face.
8. 1" x 8" - 10' ... Has one small and one medium bark seam as well as one small pitch pocket with heavy pitch extending from it.
9. 1" x 5" - 10' ... Typical No. 4 Common defects including a medium bark seam and a medium pitch pocket.
10. 1" x 8" - 10' ... The knot hole in the edge of this board in combination with the large and medium knots makes this No. 4 Common.
11. 1" x 4" - 10' ... Has one black encased knot over one-third the width of the piece and one unsound knot in the edge together with other defects.
12. 1" x 6" - 10' ... The many pitch seams scattered over the face make this another form of a typical No. 4 Common board.



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No. 5 COMMON

This is the lowest of the common grades which admits all pieces below the No. 4 Common which are strong enough to hold together with reasonable handling. No. 5 Common boards are used for rough purposes in their full size.

1. 1" x 10" - 10' ... Without the worm holes, this would grade No. 4 Common.
2. 1" x 6" - 10' ... As in the case of example No. 1, the worm holes in combination with the other defects classify this as No. 5 Common.
3. 1" x 8" - 10' ... The large bark seam, two feet long, in combination with other defects is the reason for this board being No. 5 Common.
4. 1" x 8" - 10' ... The soft rot streak along with the other defects definitely classifies this board.
5. 1" x 7" - 10' ... The two large knot holes and the large loose knot in combination with apparent defects, classify this board.
6. 1" x 8" - 10' ... One large bark seam eighteen inches long. The two smaller bark seams and two checks, each about eight inches long, definitely place this board in No. 5 Common.
7. 1" x 8" - 10' ... Note the numerous worm holes in combination with other defects.
8. 1" x 12" - 10' ... Numerous apparent defects together with the large bark seams make this board a No. 5 Common.



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No. 1 CUTS

No. 1 Cuts (shop) is a board that will cut sixty-six and two-thirds or better clear in not over two or three cuttings. Light or medium stain is no defect and boards in this grade should be graded from the poorer face.

1. 1" x 10" - 10' . . . Three cuttings of this board will result in more than two-thirds of the total area being clear.
2. 1" x 6" - 10' . . . Two cross cuts will result in three clear cuttings.
3. 1" x 6" - 10' . . . One cross cut near one end and one cut in the center will produce two clear cuttings which will meet the area specifications.
4. 1" x 8" - 10' . . . Cross cut on lower end, also cross cut for the four inch pitch seam and rip for a long cutting to eliminate the large knot. Medium stain, no defect.
5. 1" x 8" - 10' . . . Cross cut to eliminate the two largest knots then make two rip cuts to give clear surface.
6. 1" x 8" - 10' . . . The dark edge is a long strip of wane. Rip the board then cross cut the lower end so that the cross cut will eliminate both knots.
7. 1" x 10" - 10' . . . Cross cut to eliminate two knots near upper end. Cross cut the second knot from the bottom. Rip along cut in the bottom section then rip a 1 x 6 from the bottom section. The result will be the required two-thirds clear.
8. 1" x 8" - 10' . . . Rip a 1 x 4 the length of the piece. Cross cut the remainder of the board to get two more cuttings.



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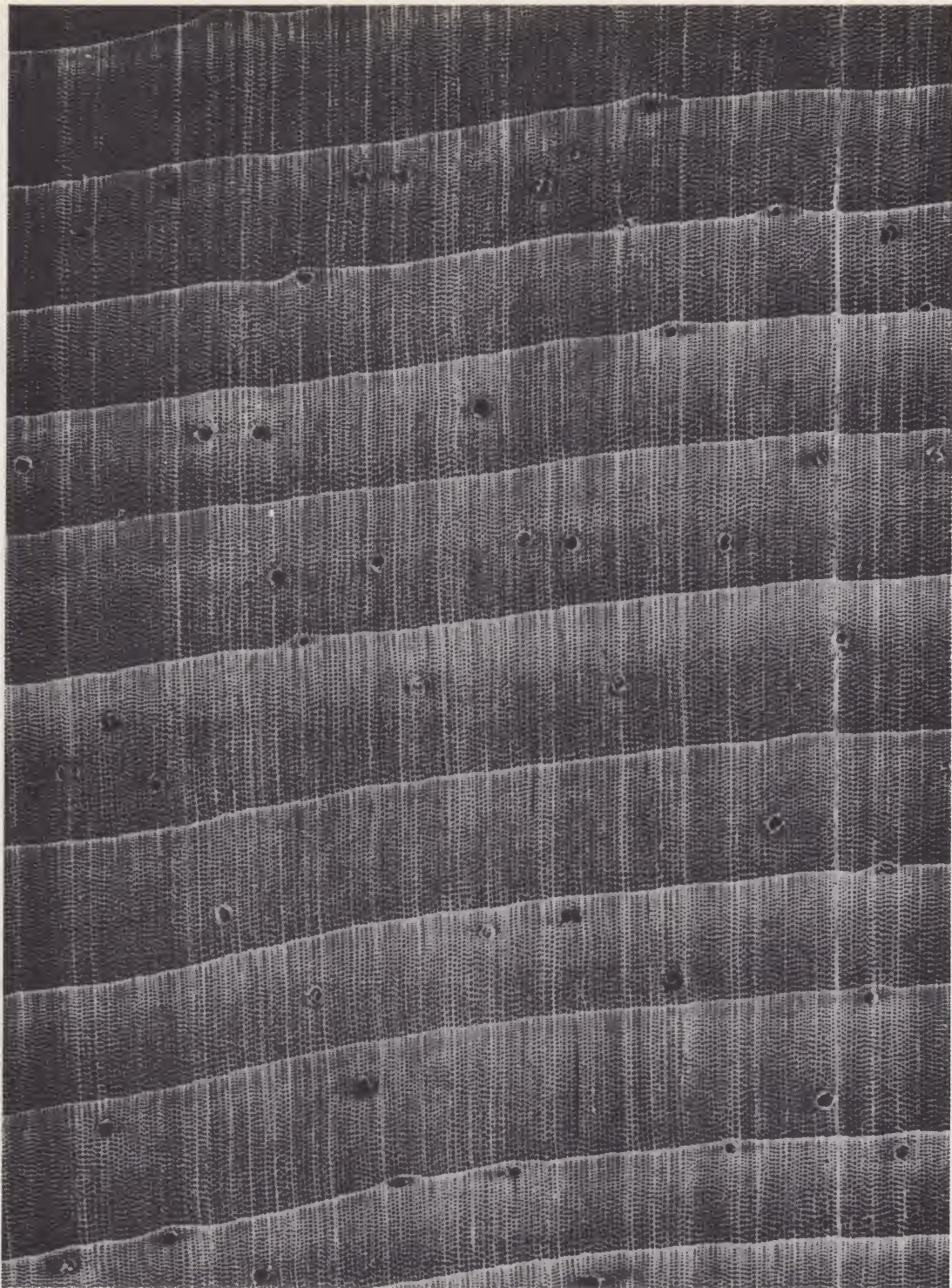
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KNOTTY PINE

These typical knotty pine boards in 6, 8 and 10 inch widths may be used for interior sheathing and paneling. This grade is selected from stock containing red knots only, which are fairly well distributed throughout the length of the piece. It must have a generally smooth appearance; and, therefore, all pieces which on the better face show shake, splits, season checks, cup, wane, pitch pockets, worm holes or rot must be eliminated. Individual preferences for knot types vary from different sizes of round knots to all kinds and shapes of spike and branch knots. The use of widths over ten inches, however, is not recommended unless the stock has been kiln dried. The type of the grades conforms largely to the regular common grades of white pine with special attention to selection of knots and elimination of defects not suitable for knotty pine finish.





*Photomicrograph of cross section of white pine wood at low magnification. Segments of several annual rings are shown. Note the orderly arrangement of the cells which accounts for the uniform texture of the wood. *Pinus strobus* is the least resinous of all the pines. The tubular appearing large cavities are intercellular spaces which are immediately surrounded by cells which have the function of excreting resin. Resin collects in these cavities or canals in the sapwood only and exudes as pitch when the logs are sawn into lumber. In heartwood, the resin canals become plugged with cellular growth which accounts for the total absence of resin or pitch in the heartwood of white pine.*

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